December 1993

approach

The Naval Aviation Safety Review

COMMANDER
NAVAL SAFETY CENTER

We ended FY93 by tying the previous record of 51 aviation Class A mishaps. Unfortunately, it's not the good news that it seems to be. First, the number of mishaps this year was achieved during a period of substantially reduced flight hours, compared to the record-setting year. Second, 30 of the 51 mishaps involved aircrew error as a cause or contributing factor.

Of the 30 losses involving aircrew error, seven were the result of OOCF, five were CFIT, four were mid-air collisions, and two were blatant violations of NATOPS or SOP — flathatting.

To review a bit of history, back in 1957, (during a six-month period) a single model (AD-1) had 96 accidents. There were 53 aircraft destroyed and 27 aviators killed. The mishap investigations found that 52 of the 96 accidents were caused by aircrew error.

In comparison, we've made remarkable progress. We're flying faster, more sophisticated aircraft, and the one-year total of all Class A aviation mishaps is less than that of the AD-1 in 1957. It's an upward trend we constantly work to improve because, unfortunately, a lot of airplanes still crash the old-fashioned way… because of human error.

Naval aviation is a proud community, and I have no doubt that each of you work to be the best at what you do. Being better than the rest is a tough task and a constant learning process. The hard lessons we've learned through decades of experience set the standards and teach you the skills you need. Constantly working to improve those skills, respecting the standards, and never settling for "good enough" keeps you the best. The same goes a long way in making naval aviation a safe place to be.

Although the Navy's overall safety record is improving, we have to remember that it's an intense and often unyielding battle we must fight day-to-day. Yesterday's mishap-free record ends with today's smoking hole.

"Guido"

A.A. GRANUZZO
Rear Admiral, U.S. Navy

inside approach

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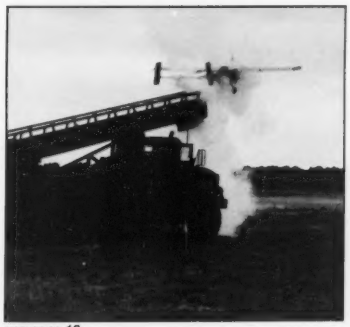

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DEPARTMENTS

On the cover: An F-14B of VF-142 prepares to launch from USS *George Washington* (CVN 73). Photo by Peter Mersky

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110-Knot Side Flare

By Lt. William M. Williams, Jr.

"Hey, sir," my chief once asked me, "you ever had one of those things try to reverse ends on you?" "Those things" referred to the H-46 helicopter. After a flight last June, I could answer his question with an emphatic "Yes!".

My crew and I were on a local training flight out of Norfolk. We were en route to an OLF, about 30 minutes into the hop, when I asked my copilot (who had the controls) if she would like to practice flying with the AFCS (automatic flight control and stabilization system) off.

She replied, "Sure." I turned the AFCS to #1, pressed the master caution light and asked, "All set aft?" It was a standard call to the crewman in the back when the helo might become unstable for one reason or another. After receiving a "Roger, sir," I turned the AFCS off.

We were flying at 110 KIAS and 1,000 feet AGL. It was windy and the convective turbulence was bouncing us around, which was typical in the afternoon at this time of the year. As soon as I had turned off the AFCS, the aircraft yawed about 30 degrees to the left and felt unstable. This condition is not uncommon when transitioning to AFCS-off flight since the AFCS keeps the aircraft in trimmed-and-level flight. The pilot must manipulate the controls to regain stable flight, especially in the yaw axis where the AFCS does the most work.

The nose of the aircraft continued left to about 45 degrees. I started to get on the controls to help my copilot stabilize the aircraft. I decided to turn the AFCS back on to get things under control because it looked like matters were worsening, even with significant right-pedal input.

Just as I turned on the AFCS, the aircraft yawed a full 90 degrees from our original heading. We were in a 110-knot side flare! We were being pulled from our seats and since both cockpit windows were open, a deafening wind rushed through the cockpit. Our crewman was feeling real uncomfortable in the back because the effects of flying sideways was amplified in the cabin, enough to pin him to the side of the aircraft.

Since I had turned the AFCS back on, and put in full right pedal (provided by both my copilot and me), the aircraft yawed violently a full 180 degrees in the opposite direction. What a ride! I had taken the controls immediately after the aircraft had snapped 90 degrees to the left. Now we were facing the opposite direction. One side flare just wasn't enough!

I screamed, "AFCS off!" which my copilot made out, somehow, and obliged. I brought the nose around to our original heading and recovered at 80 KIAS and 500 feet. The entire episode lasted only about eight seconds, but it felt like a lifetime.

After everyone caught their breath (and wished for a change of clothes), we discussed what had happened. We were not really sure if we had a problem with the aircraft or not. Forward and aft station checks indicated all systems were normal, and we were still flying. We continued to the OLF (only a few miles away), landed to discuss our options and give the aircraft a good check.

Now the hard part: we had to decide whether to return to base or shut down and get the aircraft properly inspected. We even talked about entering the landing pattern and continuing with the flight since everything seemed normal. However, the more I thought about it, the more it became apparent that we could not possibly know the condition of all the aircraft components and systems that had been subjected to an abnormal flight condition without shutting down. I mentioned this fact to the crew, and they both strongly agreed.

Since the aircraft had flown properly after we stabilized it, we decided to fly it back to Norfolk. There were also no facilities or personnel at the OLF to do the required checks. And, since our check of the helo didn't reveal any problems, our decision seemed to be the right thing to do.

We learned several lessons that day. First, as an instructor, I should have had my copilot reduce the airspeed before securing the AFCS. The slower airspeed would have made the transition from AFCS-on flight to AFCS-off flight easier because it would not have required as many control movements.

Second, don't be afraid to admit when you've exceeded some limit. The MIMs called for inspecting every component on the aircraft with a fine-toothed comb, which would have been a lot of work for the maintainers. But that wasn't reason enough to fly a possibly damaged aircraft. Looking back, the better choice would have been to at least call homeplate for a recommendation. ◀

Lt. Williams flies with HC-8's Det 5.

How Did I End Up Here?

By Lt. William R. Shivell

I was finally going home after two weeks of ACM training detachments in Nevada and Canada. I was flying an A-4F from Canada to NAS Moffett Field, where I would check in with customs, RON, and fly to Miramar the following morning. A simple, basic plan.

The weather was perfect. Not a cloud to be seen, and the winds were favorable. I hadn't flown much in the Pacific Northwest, so this trip would be interesting.

Seattle Center cooperated and immediately gave me a time-saving vector once I crossed the Canada-U.S. border. As I tuned in various TACANs to keep my bearings, the clear view of Whidbey, Seattle, Portland, Eugene and Medford was incredible from FL 370. I also saw Klamath Falls, remembering last year when I was on det there with the Oregon Air National Guard. As I crossed the Oregon-California border, I tuned in another TACAN and began an instrument check.

As I pushed the oil cube, I saw an 80-percent quantity light. Naw... couldn't be. I checked the Master Press-to-Test. It checked 4.0. I pushed the cube again. The 80-percent light was still there. Not good. My cruise-power setting was 82 percent (recommended power for the P-408 engine with an oil malfunction). I looked at my chart and determined that Klamath Falls was my closest divert.

I tuned in the TACAN and saw that I was southwest for 60 miles. As the TACAN locked up, Seattle Center handed me off to Oakland Center. I switched the frequency and was about to request a divert to Klamath Falls.

Before I could get a word out, the 20-percent oil-quantity light was staring me right in the face, and the engine began making noises and vibrating. I turned northeast and dropped my hook.

"Oakland Center, Bandit 6 checking in, declaring an emergency, descending out of FL 370, and diverting to Klamath Falls."

The controller told me that I was not yet in his area and to switch back to Seattle. I switched back and told the controller I had a possible impending engine failure. He switched me to another frequency for the low sector, and I checked in. About then, the oil pressure was fluctuating erratically around 25 psi and was dropping fast (normal for the A-4 is 40-50 psi). I was still about 45 miles from Klamath Falls. Knowing this engine wasn't going to last that long, I told the controller that I needed to land. "Now," I said, "on anything paved."

The controller told me that Siskiyou County Airport was on my nose at eight miles and started reading off all sorts of statistics, none of which I remembered. The oil pressure was around 15 psi now. Even though a familiar

field with an arresting gear was 10 minutes away, I figured that arresting gear is no use to a guy in a parachute.

"Bandit 6," the controller called, "I show you over it now." I dipped a wing, saw the runway, and asked how long it was.

"7,484 feet."

"I'm taking it."

"Okay, Bandit 6, but Siskiyou County is uncontrolled. We won't be able to tell anybody you're coming in."

"Oh, well..."

I started from a high key of about 19,000 feet, and was pretty fast. (A Super-Fox still puts out a lot of thrust at 82 percent.) Pulling G to get rid of my energy didn't seem the thing to do with an oil problem, so I planned on a wide pattern to bleed off the excess airspeed and altitude. It was soon obvious that I couldn't slow to gear speed and land on the first pass without extending a long way from the airfield. I remembered that in a gear emergency, you could accelerate to 350 KIAS to help blow a gear down into place. The hydraulics would hold out, but I might bend a door or two.

At a high-180 position, I lowered the gear handle at 340 KIAS. The gear quickly came down and locked, and the added drag started to help my profile. The controller said the field elevation was 2,600 feet and that he would lose radar and radio contact below 7,500 feet. He asked if I could phone him ASAP once I was on deck. He also wished me luck.

At a deep 90, the airspeed was getting better, but I was still fast. At 280 KIAS, I added the flaps to aid my cause, knowing they'd come down as I slowed below 230 KIAS. I rolled out on final inside one mile, with the airspeed finally getting down below 200 KIAS. I took one last look at the oil pressure—5 psi. Please, just a few more seconds.

Knowing that there was no arresting gear, I figured I would be hard pressed to stop the jet if I touched down at 180 KIAS, so I planned for a low, flat approach. With the nose up and my rate of descent minimized, if the engine did seize up, I was sure I could still safely eject. The moment of truth would be when I pulled the power to idle. If the engine would seize, it would do it then.

At about 2,000 feet short of the threshold, I pulled the power back and began to flare—170 knots, 160. Across the threshold at 150. Touchdown at 140. Spoilers up. Ease in some brakes passing 120. Little more. More.

With about 1,000 feet of runway remaining, I knew the jet was safely on deck. I raised the hook and cleaned up the jet as I cleared the runway. Oil pressure was 3 psi as the engine idled well below normal rpm. I shut down the engine and began to unstrap as a local deputy drove up, saying "I didn't know y'all could land here." Neither did I.

"Do you have a fire extinguisher?"

"Sure."

"Get it."

Looking for possible fires, I quickly began opening panels. Fortunately, I didn't find any. What I did find was a whole lot of engine oil all over the rear half of the airplane and inside the engine exhaust. I expected that.

Within a few minutes, I was met by most of the Siskiyou County Sheriff's Department and a few other casual observers. Seattle Center had called the sheriff and told him that a Navy jet might be going down in the area. Soon, the airport manager arrived, saying he hadn't seen an A-4 for a while. He was a retired Navy A-4 squadron skipper. Small world.

I called Red Bluff Flight Service Station and asked them to tell Seattle Center that Bandit 6 was safe on deck. Then I called my squadron's duty office to tell them what was going on.

"Siskiyou County? Where's that?"

"Hold on." I turned to the deputies. "What state am I in?"

They said I was in California, about 12 miles south of the Oregon border.

After a few pictures with the deputies and a ride to the sheriff's headquarters in nearby Yreka, the retired skipper offered to put me up for the night while the squadron figured out what to do. We found the one steak house open on a Sunday night and had a survivor's dinner as we traded sea stories.

I did ask him, though, why Siskiyou County saw the need to put a 7,400-foot runway in the middle of nowhere. Siskiyou County Airport, it seems, was an old alert strip for NORAD interceptors during the cold war. There used to be a TACAN and PAR there, and the Navy even used to fly in for instrument training. The military gave it to the county in the 1960s, and it is now used by some crop-dusting helos, a couple of Cessnas and, of course, the occasional military jet with an emergency.

As it turns out, Yreka isn't bad at all. I made lots of new friends and have an open invitation to come back any time. I made the front page of the local paper...two weeks in a row. I even got an offer for a glider ride. More important, though, I climbed out of a jet I could have ejected from, or worse.

As I went to bed that night, I looked out at the (few) city lights of Yreka, California, population 6,948, and wondered, "How did I get here?" I quickly answered myself. "Who cares?" I was just glad to be there. ◄

Lt. Shivell flies the A-4F and F-16N with VF-126.

Off the Cat

By Lt. John B. Williams

I was transitioning from the Corsair to the Hornet and was preparing to take my first cat shot in the F/A-18. I was still trying to figure out what to make of the Hornet's "hands-off" catapult ride. After the first shot, I decided I didn't like the idea. My one cruise in the Harley had taught me that there's no better feeling than that full, manly rotation and clearing turn off the bow, blinded by sweat because there was no on-deck air conditioning. The Hornet sinks down and drags itself out of the mud by comparison. Good thing it has an afterburner.

At the end of the day, I started asking myself, "How much sink is too much?"

In the Corsair, the nose came up immediately after the stroke, so I knew that I'd feel a bad shot in the seat of my pants, as well as see it on the airspeed indicator.

I asked experienced Hornet pilots exactly what they looked at during the cat shot. I got answers that ranged from the "trout stare" to a detailed explanation of the F/A-18's flight-control system. Usually, people threw in the word "airspeed" for the end of the stroke, but what airspeed? Now that I'd done a couple of shots, I knew one airspeed that worked. But what was the minimum airspeed to fly?

The first thing I learned was that the Hornet doesn't even try to start flying until it has left the deck, which accounts for the greater sink rate. I found the answer to my airspeed question in the NATOPS performance chart. Assuming that it is not good to be below stall speed, I found that the speeds of 104 knots at 34,000 pounds, and 126 knots at 45,000 pounds were good numbers. Add full afterburner and these speeds are reduced to 92 knots and 105 knots, respectively.

Now, as every seagoing Hornet driver can tell you, the airspeed lags down the cat stroke, but experience would help me know when I had reached the right velocity.

I knew what to look for down the stroke, but what about the big sink at the end? I didn't want to be one of those guys who doesn't know where to go, and end up wasting a $35-million airplane or my life.

The good thing about the Hornet is that all the info you need to make quick decisions is digitally displayed on the HUD, right in front of your face. (Figure 1) The airspeed is in a box on the left, RALT altitude is on the right, with instantaneous VSI above it. Waterline symbol and pitch ladder with velocity vector are in the middle.

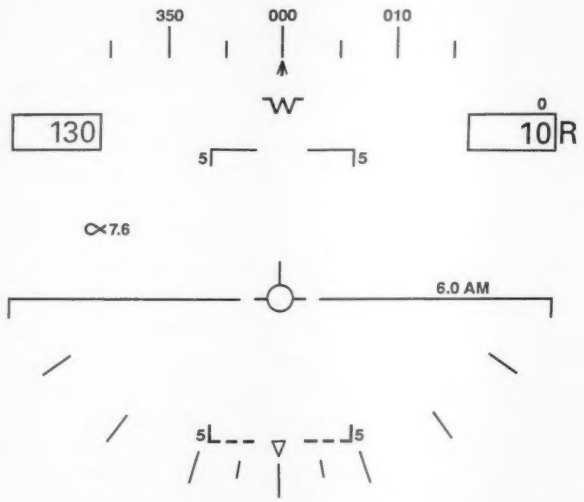


Figure 1

Figure 1 is what you might see on the way down the stroke of a normal shot. NATOPS tells us that at the end of the shot, we can expect to settle four to six feet with 11 or 20 knots excess, and up to 20 feet (ouch!) with zero excess.

Richard Jackson

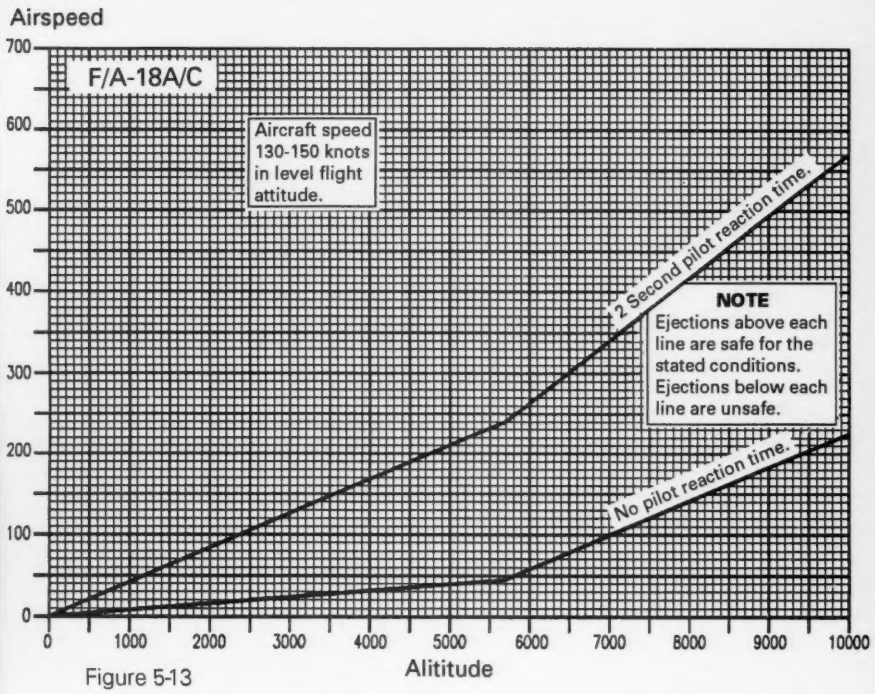


Figure 5-13

After watching my airspeed until the end of the stroke, my next scan item should be the VSI and altitude, via the rising waterline symbol, which tells me that the nose is coming up automatically. What if I see the situation in Figure 2? Is it time to go, or is it too late and I should just push the stick forward to make a splash when I go in?

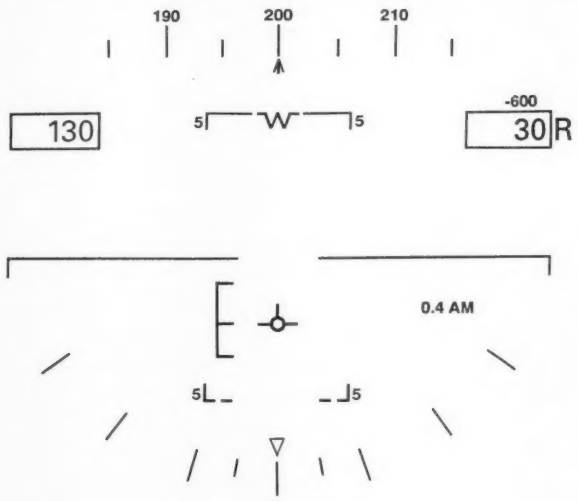


Figure 2

Looking at Figure 5-13 from the NATOPS shows that I still have plenty of time. In fact, at 30 feet, I could eject with a descent rate of 3,000 fpm, assuming my hand is already on the handle (no pilot reaction time)—and it will be.

A closer look shows that with the SJU-5/6 in the F/A-18C, I could safely eject at 50 feet with a descent rate of 5,000 fpm, at 40 feet with 4,000 fpm, and 20 feet with 2,000 fpm. These numbers don't apply to the F/A-18B/D and the SJU-5/6, but they do with the SJU-17 NACES seat.What does all this information tell me? Down the cat stroke, I look at airspeed. If it doesn't get above a certain number, I immediately begin my procedures for an aircraft settling off the cat *before* I leave the deck, or I eject.

(Step 1 [Throttles—Max] Control inputs prior to the one-second FCS gain washout during AOA capture can place aircraft attitude off the catapult in extremis.—Ed.)

Once I leave the deck, I transition to the altitude and VSI with those magic numbers in the back of my head and the waterline symbol at 12-14 degrees. If the altitude and the VSI even come close to matching up (VSI in the thousands), I pull the handle, probably even before then. But it's good to know the bottom line.

This idea isn't limited to the Hornet. You can practice it every time you fly off the boat. At least you can eliminate indecision and possibly reduce your decision time to near zero, which is the most we can hope for in an emergency. ◀

Lt. Williams flies with VX-5.

Peter Mersky

Do You Deserve to Be in the Cockpit ?

By LCdr. Mike Buran

On final approach during a solo flight, a student ejected from his T-2C Buckeye less than a quarter mile from the numbers. His problems had started immediately after takeoff: whining sounds from the engine area. He brought the throttles to idle, and all indications were normal. An instructor pilot in a chase aircraft persuaded the student that dumping fuel at the prescribed area (eight miles from the field) should be his next course of action. As a result, the student broke off his downwind approach for immediate landing and climbed to start dumping.

Relying heavily on the instructor, the student shut down the suspect engine. After dumping, he requested a straight-in and started his approach.

On short final and at 500 feet AGL, he heard more whining sounds and thought his remaining engine was about to fail. Having shut down the first engine without adequate troubleshooting, he felt there was no other course of action. The student ejected safely. The aircraft was destroyed.

Investigations revealed that the engines were working correctly and had no part in the mishap.

In another mishap, an A-6's engine failed at rotation during the takeoff roll. The pilot jettisoned his load on the runway (approximately 9,000 feet remaining) and continued his rotation to liftoff. Unofficial doctrine prescribed that once rotation was begun, you are committed to go flying. Because of the combination of density altitude, gross weight and rising terrain, the aircraft was unable to sustain single-engine flight. The pilot and BN ejected and were recovered. The aircraft was destroyed, crashing after traveling eight miles.

The wrong rotation speed had been briefed. NATOPS charts showed that the aircraft could have landed on and probably taxied off the remaining section of the 14,000-foot runway. The charts also proved that once the single-engine aircraft took off on that day, its minuscule rate of climb, coupled with the slightly greater degree of rising terrain, made flight impossible.

An F-14 pilot and his RIO safely ejected from their aircraft after the pilot departed the aircraft. A compressor stall compounded the situation and the aircraft entered an unrecoverable flat spin. The response throughout the community was, "I knew it was just a matter of time," "I watched him do almost the same thing a few flights ago," and "I told my squadron that he would probably be the next pilot to put one in."

These mishaps were avoidable. Each aircrew had the knowledge and opportunity to break the chain of events that resulted in the mishap. Frequency of catastrophic mechanical failures has declined from the early 1980s. On the other hand, the rate of aircrew error has not decreased nearly as much. The result is that aircrew error now forms a larger percentage of the overall mishap rate (49 percent from 1981-1986; 58 percent from 1987-1992).

Peter Mersky

Of the 26 Class A flight mishaps investigated by the Safety Center between January 1 and August 31, 1993, 14 (53.8 percent) listed aircrew error as a cause.

The following chart depicts the rising percentage of aircrew-error factors in relation to declining overall mishap rates from years 1981-1986 and 1987-1992:

CY	MISHAPS	RATE	FACTORS	RATE	PERCENT
1981	92	4.68	45	2.29	49
1982	89	4.41	38	1.88	43
1983	86	4.29	40	2.00	47
1984	69	3.30	34	1.62	49
1985	73	3.42	37	1.73	51
1986	68	3.16	40	1.86	59
6-year average:	**477**	**3.86**	**234**	**1.89**	**49.1**
1987	74	3.25	41	1.80	55
1988	48	2.16	28	1.26	58
1989	55	2.46	39	1.74	71
1990	63	2.96	31	1.46	49
1991	59	2.86	31	1.50	53
1992	57	3.11	37	2.02	65
Last 6-yr. average:	**356**	**2.79**	**207**	**1.62**	**58.1**

The solution to significantly reducing the aircrew-factor mishap rate is not contained in any gold-lined NAVAIR instruction. If you swivel your chair 180 degrees and spot the binders on your cabinet, you will be looking at the first part of the answer. The instructions are already written. The SOPs are already printed. The NATOPS procedures are there to be memorized. The knowledge to keep pilots from needlessly killing themselves and their crews is there to be learned and applied.

The second, and arguably most important, part of the answer is enforcement of published instructions. COs must hold aircrews accountable for their actions. Today, a "B" on a FITREP is more detrimental to a career than plowing some farmer's field with a $40-million piece of high-tech equipment because of a pilot's disregard for established rules.

A pilot who does not have the drive to learn the instructions or chooses to disregard them does not deserve to be in the cockpit. In today's Navy, the definition of the term "naval aviator" must begin with "consummate professional, a pilot who thoroughly knows his aircraft's limitations and his personal limitations and, above all, respects both." Anything less endangers lives. ◀

LCdr. Buran is a mishap investigator with the Naval Safety Center. He flew H-2s with HSL-36 and HSL-37, H-1s and C-12s at NAS Meridian, and was a SERGRAD instructor with VT-3.

Japanese Ping-Pong

By Lt. Daniel L. Sherwood

As we landed, I wondered what the reception would be like. We were the first F-14 aircrew to ever land at this airfield in the Far East. Would they speak English and give us gas, or would they impound the airplane and arrest us? Either way, I was just happy to be on deck.

This flight had definitely seemed like a good deal, flying back early to see my wife after a month-long predeployment surge. We had left Cubi, coincidentally the last F-14 to ever do so, earlier that morning and flown an uneventful first leg to Kadena Air Base.

Our next step was home to NAF Atsugi. My pilot and I briefed, filed and checked the weather while the aircraft was being refueled. The weather back home was marginal at best; snow was forecast. With that in mind, we covered our divert and get-home-itis in the brief.

Just before takeoff from Kadena, the weather at our home field started to improve and looked good enough not to worry about. What we didn't consider were man-made obstacles.

The flight was great going home. A couple of Prowlers were 20 miles ahead of us. We decided we could bump the speed up a little and beat them home. We would arrive with about 1,500 pounds less gas than planned, but we would still have plenty.

When we checked in with Approach, we knew the joke was on us. An aircraft had blown a tire at our destination, and the field was closed while they tried to get the plane off the runway. "No problem," I thought, "we can wait… we have enough gas."

There were now four planes holding at 20K above the clouds, waiting for the field to open. We checked weather at our divert and found it clobbered by a blizzard; ceilings were at PAR mins. Worse yet, the PAR was down. Finally, after a 30-minute wait for the field to open, Approach told us to land after the Prowlers.

Proceeding as a single, we descended to 8,000 feet. Then we were told the field wasn't open and that the aircraft was still on the runway.

"The runway will be cleared in 30 minutes," Approach promised.

That sure sounded familiar. The 30 minutes passed and the field was still closed. We were told there would be an indefinite delay this time. By now, we were low on gas, and all four crews asked for a weather report at our divert. Not a chance. No one would be landing there without a PAR. Now what do we do? We were at 8,000 feet, in the clouds, and had used up most of our gas, waiting for the field to open. Everyone was low on gas, even the Prowlers. To make matters worse, the controller was losing the bubble. All of us felt like ping-pong balls as he vectored the four of us toward our divert and back to our own field at a dizzying rate.

At first, the weather at our divert was good enough to

land—or so we were told. A Prowler tried and proved the controller wrong. Then our field would "open up," and then it would "close" on us as we were vectored to it. Now everyone was screaming at the controller to either open up the primary runway or fix the lousy PAR.

My pilot and I had both the luxury and misfortune of being last in line to land. We knew the whole situation but would be the lowest on gas when it was our turn to land. Our box was beginning to close up on us. We were suddenly inspired. What about that foreign military base 100 miles to the southwest? A quick weather report from Approach cheered us up. It was a long ways out, but weather was great. The only problem was that no one in our air wing had ever used that field.

I checked our bingo and it was 4.0. We now had 3.7. Without hesitation, we declared an emergency and started our bingo profile. As we left Approach's airspace, we heard two radio calls: our primary was still closed, and the PAR controller was off his "lunch break" at our divert.

A Prowler landed there and reported very poor braking action and weather at mins. There were still two ahead of us to land at the divert and a controller who did not understand our situation. We stayed on our bingo profile, confident that we had made the right decision.

As our controller rogered our emergency and mindlessly told us to level off at 15,000 feet for traffic, I was *certain* we had made the right choice. We told Approach where to put the traffic and continued on our profile.

The bingo was uneventful yet tense. We were in contact with the new divert tower on our second radio, and they set everything up for us. It took forever to get there, but I had never seen such a beautiful sight. A 9,000-foot runway, ours for the taking.

We landed with 2,000 pounds, give or take a few, and were taxied to the departure end's hold-short for gas and a start-up. We ended up being celebrities. Everyone on the base showed up with their cameras and videocams to see their first-ever Tomcat. Not a bad ending to a very bad flyoff. We didn't even have to pay for gas. They started us up easily, and we took off again to a now-open home field.

The biggest lesson learned was that you can never plan too much. The sooner you identify problems, the more options you have. If we had briefed a second divert, weather and a closed runway would not have been a factor. We also would have had more gas if we had not pushed to get home sooner. Get-home-itis is so insidious that even when you brief it, you still have to fight it the whole flight.

Third, check weather early and often. Plan on unexpected events, especially when operating from an airfield with one runway.

Lastly, a divert isn't really a divert unless you can land there. It may save you an unannounced AOM in your life raft. ◀

Lt. Sherwood flies with VF-21.

There I Wasn't!

By Lt. Dave Manero

I recall my first look at an *Oliver Hazard Perry*-Class frigate. I was a midshipman.

"What a curious place to put a gun," I thought. Pointing aft at the stack and the flight deck, it defied conventional wisdom. Evoking just a small amount of common sense, my parents always made it a point to remind me not to look directly down the barrel of my spring-loaded BB gun. Borrowing from the book *1001 Quotes for Concerned Parents*, I often heard the somber warning, "You'll put your eye out!"

"That's silly," I thought. "I'm careful."

Those words came back to haunt me during a recent WESTPAC deployment. Having just returned from a 3.8-hour flight, I had turned over with the oncoming aircraft commander and entered the ship's hangar. That's when *it* happened.

Boom! (Good thing I brought three flight suits on this cruise.) A huge explosion seemed to nearly shake the bolts out of the aluminum skin of the ship.

Call me a rocket scientist, but I immediately thought, "Bad situation." A large explosion of unknown origin, and one $20-million helicopter turning on the flight deck. I ran to the flight deck, only to find the two pilots in the aircraft with stunned looks on their faces and enough FOD on the deck to fill a medium-sized bucket. One piece in particular measured about 17 inches in length! Miraculously, the aircrew was unharmed, and the aircraft was still turning.

The only course of action was to immediately shut the aircraft down for a thorough inspection. The problem was that aircraft No. 2 was in the air with 15 minutes of fuel left until red light. Through the experience and quick-handedness of our maintenance personnel, we were able to fold and stuff the aircraft in 12 minutes flat. After a thorough FOD walkdown, No. 2 was safely recovered and shut down. We decided that was enough excitement for one day.

What happened? As it turned out, the 76mm gun fired a lead training round that penetrated the ship's stack, CIWS, and an unlucky storage locker. The stack's heavy aluminum doors were completely blown off, and a neat three-inch hole marked where the projectile penetrated. The round apparently continued on its merry way over the top of the turning helo (much to everyone's pleasure). Not to be the purveyor of doom, but 10 minutes earlier or five minutes later, and the standard 76mm training round would have successfully completed its trial as a quick method of removing an SH-60B's main rotorhead.

What about the "cut outs" that are supposed to prevent such a scenario? Quite simple. They failed. A few key human errors also contributed to the situation.

So "There I Wasn't," and it's a good thing. Our aircraft suffered only a minor gash and, more importantly, no one was killed. Procedures exist for a reason. It was an important reminder that fancy safety features and equipment are no substitute for good sense and attention to detail. Maybe our parents knew something after all. ◄

Lt. Manero flies with HSL-45.

Todd Pacific Shipyard Corp.

The Bird's Eating the Dynamite!

By Ltjg. John Frederick Brabham

VXE-6's mission often means adventure. During my tour, we have been tasked with many strange and interesting missions for our UH-1Ns tc support the National Science Foundation. But without a doubt, no flight was as strange as this one.

We had to take out approximately 500 pounds of surplus C-4 explosives, which were to be disposed of in a remote location. (In other words, we were going to get a real fireworks show!)

We picked up the pyrotechnics specialist and the explosives, then set them down on a location on the ice shelf. Next, we went back for the blasting caps—no way did we want to carry the two of them together.

One thing I have to explain is that everything is protected in Antarctica, even a bird called the South Polar skua. It is a big brown bird that looks like a seagull on steroids. These suckers will eat anything, even a whole frozen hamburger. Hurt one and it's a $10,000 fine. Ouch!

Well, the pyrotechnician set up the explosives and was ready to detonate them. We took our observation point at a safe distance from the blast site. Just as he was ready to start his countdown, he called us, sounding very annoyed.

"Can you chase the skua off the dynamite? He's starting to eat it!" I broke open the big, blue sleeping pill and fumbled through the index, but there was definitely no listing for how to chase birds.

We lifted off to do a low flyby over the sight. The skua flew off. We thought, "Cool, mission accomplished." We flew back to our observation site. Just as we were about ready to land, we heard over the radio, "Guess what, that stupid skua is eating the dynamite again." So we headed out to chase him off.

We flew by the bird at about 25 feet AGL and 40 knots. The skua took off, so we decided to follow the bird. We crept up behind him with the stealth of an African elephant. No sooner had we gotten in formation with him than he juked us and started to head back to the explosives, but we stuck to him like super-glue.

He zigged and zagged, trying to throw us off his tail, with no success. Finally, the skua called it quits and conceded the victory to us. It headed for the hills, and we saw it land about a mile away.

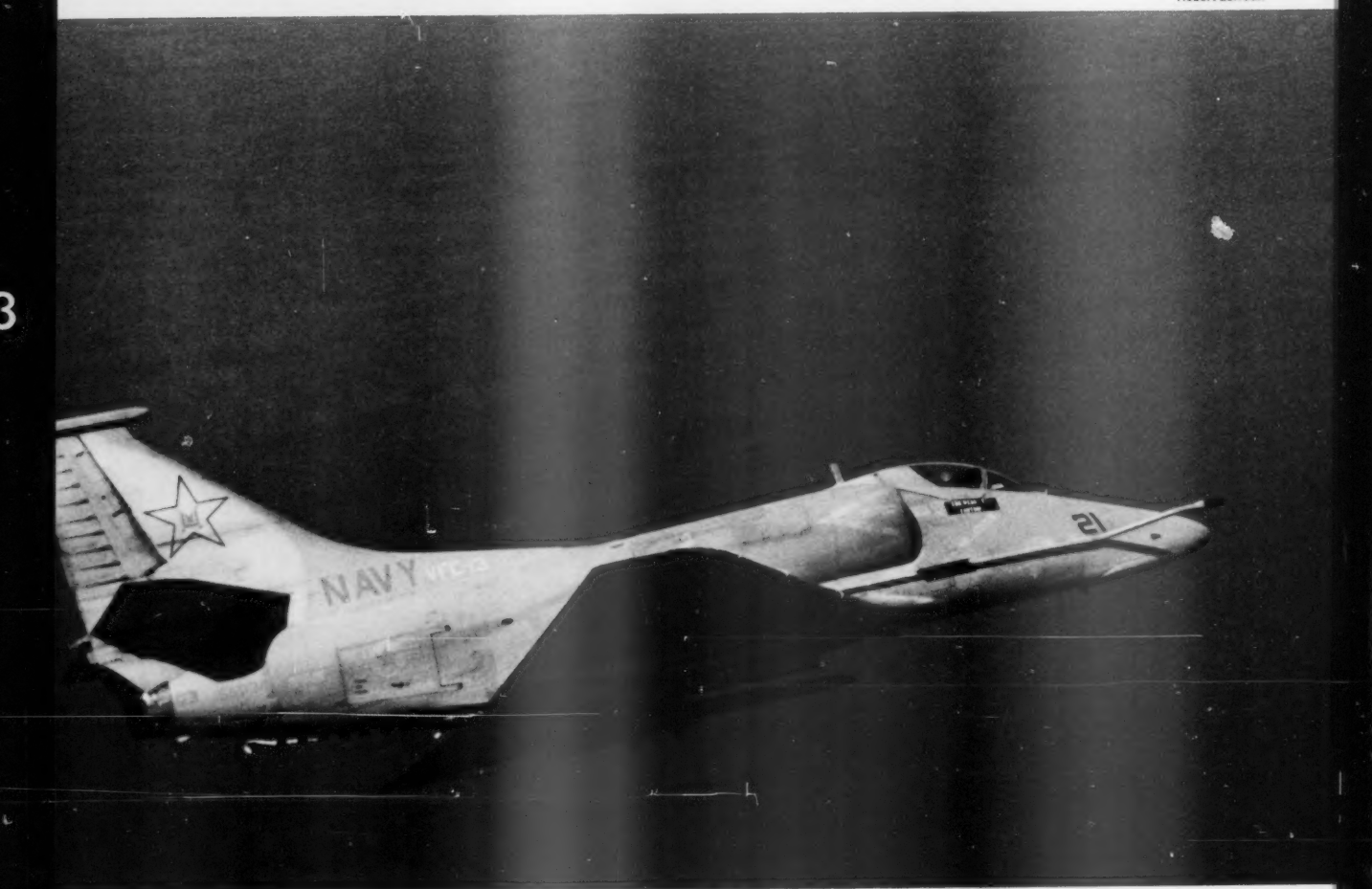
As we headed back to our observation site, we thought about what we had just done. We laughed as we thought that this situation wasn't covered by NATOPS. Then, we thought that although it wasn't necessarily unsafe, it probably wasn't the smartest thing we'd ever done either. That was definitely something which the NATOPS brief doesn't cover.

I guess that a NATOPS change will be incorporated next time. ◀

Ltjg. Brabham flies UH-1Ns with VXE-6.

LEFT to LEFT

Robert Lawson



By LCdr. Marvin C. Huss

"Bogey 1," fighter lead called, "it doesn't look like we're going to make it out today." So much for chasing Tomcats over the Pacific this afternoon. My lead and I would have to fall back on our alternative mission of 1 v 1 ACM. Not that it broke my heart. Going 2 v 1 against FRS F-14s is fun, but for honing your ACM skills, there is nothing like 1 v 1 similar against a highly experienced opponent.

Between us, we had more than 6,000 hours of fighter and adversary time. Each of us also had been in the squadron for more than six years and had flown countless sorties together. So, when we launched into a clear afternoon sky, things couldn't have been more perfect: great friends in two clean A-4F Super Foxes about to experience some of the best flying in the world.

We checked into the warning area and were able to get clearance into a much closer operating area than the one we were originally scheduled for, which meant more gas to fight with. This flight just kept getting better.

"Now," I thought, "if we can only keep these old A-4s going for the next 45 minutes without losing a generator or a hydraulic system, we are going to have a hop worth remembering."

Before we started, we checked our slats. Since the A-4 has mechanical slats, which seriously affect aircraft performance and controllability during high-AOA maneuvers, these checks are a critical test.

My slats were perfect, but lead's slats, though well within limits, were a bit sticky. This made him roll off slightly and slowed his time to reach a max-performance turn with his jet. I tucked this fact away and planned to use a very aggressive position-fight gameplan to take advantage of my jet's smoother slats.

Our first two fights went according to plan. I was able to deploy my slats first and arrive at the pass with turning room and a bit of a bite. However, the fight went two circle as a result. I wanted to try driving the fight same circle to use my position-flight gameplan.

On the third engagement, I decided to float my turn in to minimize our lateral separation at the pass and give me the option to go same circle. The initial turn in looked good. We were set up for a left-to-left pass, so I eased my turn to minimize the lateral separation and still maintain the minimum 500-foot separation as required by training rules.

Suddenly, something went wrong. My flight lead tightened his turn, and we were now set up for what might develop into an uncomfortably close pass. We had plenty of straightaway, though, so I wasn't too concerned. I just pulled hard left to achieve separation.

My next several seconds took on a dreamy slow-motion quality. It was similar to the two-people-in-a-hallway routine, exactly matching each other's attempts to avoid the other until they finally had to stop and laugh it off. The difference was that we were closing each other at more than 700 knots, couldn't stop, and definitely weren't going to laugh!

I remember seeing his aircraft dead on, with no aspect in my windscreen at no more than 1,000 feet. At that point, a feeling came over me that this was definitely it. Through all my experience as a naval aviator—through night traps, low levels, gigantic many v many dogfights—I've had several close calls, but never the feeling that I wasn't coming back. Believe me, it's not a good feeling.

Somehow, though, in that last infinitesimal split-second we had left, both of us finally pulled in different directions, and just as quickly as the shadow came upon us, it was gone. We missed.

The few close calls I've had on the TACTS range at 50 to 100 feet were nothing compared to this pass. We figure that we passed within 10 feet of each other. We knocked it off and went home—the first time either of us had quit with more than bingo fuel in our tanks.

We were lucky. We could have collided and disappeared into the Pacific. The sad truth is that it would have been completely our fault. Three words would have avoided this whole situation: left-to-left.

The training rules that govern ACM say that aircrews will broadcast their intentions on any close pass. We didn't make the call. Was it because we were so comfortable flying together? Perhaps. The main debrief point here is that the training rules are there for our safety. They work, and we have to follow them every time we fight. ◀

LCdr. Huss is the safety officer for VFC-13.

Crowded Skies, UAVs and You

By Maj. C.P. Craig, USMC

Following the Unmanned Air Vehicle's (UAV) performance in Desert Shield/Storm, DoD has begun to increase UAV capabilities and expand their use. The increase in UAVs will add to already crowded skies. Three Marine Pioneer UAV Companies participate in virtually every major exercise that the Marine Corps is involved in. The Navy is also increasing the number of UAV Detachments of VC-6.

The Pioneer UAV has a 14-foot wingspan, 17-foot length, and a 3-foot cross-section. Pioneers are painted low-visibility gray for combat survivability, which makes them hard to see. The UAV weighs about 450 pounds and can fly at 100 knots or better. In short, if you hit it or it hits you, it will do some damage. A good rule of thumb here is: if you can make out the details of the Pioneer, you're too close!

Since Pioneers are fixed-wing aircraft, traffic separation is accomplished via routing, time, altitude, and other fire-support coordination measures. Pioneer missions are assigned on the Daily Air Tasking Order.

Pioneer uses standard aviation lights with some differences. The anti-collision light is an aviation-white strobe mounted on the top forward fuselage. Navigation lights are of standard color and placement, except the white navigation light is located on the nose of the aircraft. The empennage houses two orange, unmanned-aircraft identification lights. Each wing leading edge has a green strip light similar to aircraft formation lights. During peacetime training missions, all lights are normally on.

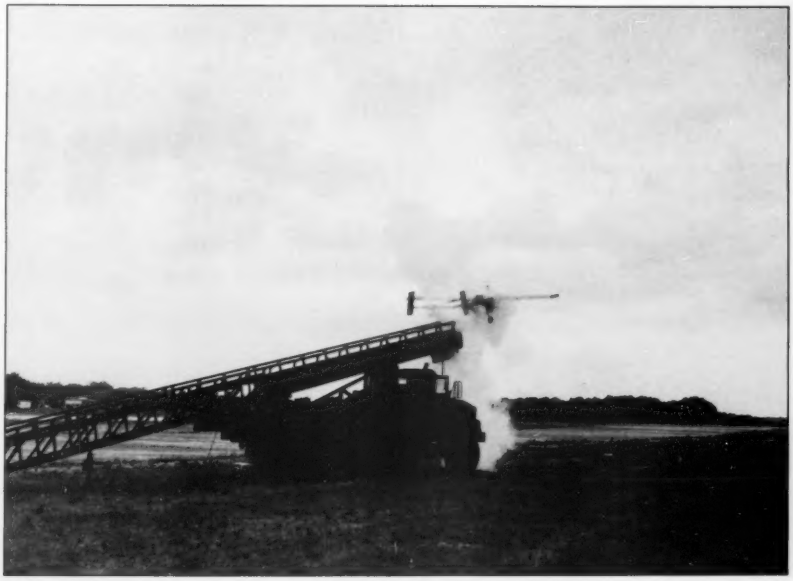
The Pioneer also has a standard 4096 transponder. The squawk is set on the ground and cannot be changed in the air. A mode-C altitude-reporting capability will soon be incorporated. Again, during normal training evolutions, the transponder is active and can be painted by radar. With the transponder secured, a primary return will be hard to acquire because of the very small radar cross-section of Pioneer.

For TACAIR radar operators, normal Pioneer operating airspeeds are below your speed gates.

The next logical question for the aviator is: If I know where I am, how does Pioneer know its location? Basically, the aircraft "talks" via radio to the ground station.

Computers do the math and display the location in a variety of ways to the ground-based flight crew, using digital readout of latitude and longitude, an electronic display of position on a map and readout in standard UTM grid on the payload video screen (just like a HUD). Airspeed and altitude information is transmitted directly from the air vehicle to the ground-control station. As a backup and to ensure accuracy, the flight crew also navigates from maps by viewing the payload video. Pioneer can report its position using an onboard GPS, although this feature is not fully incorporated into the fleet at this time.

Pioneer flight operations are governed by OPNAV 3710.7 and within U.S. airspace by Federal Aviation Regulations. As such, you will generally encounter Pioneers only in restricted airspace or airspace where an air-traffic control agency can exercise positive control (typically Class D airspace, formerly airport traffic areas and control zones). Operations outside these areas require a manned escort aircraft.



Pioneers routinely share the landing pattern with conventional aircraft. Normal pattern altitude is 1,000 feet AGL and is generally flown at 65 knots. This is similar to most civil aviation low-performance aircraft.

Two-way communications is maintained between the flight crew and the air-traffic control agency, usually by UHF radio. In a tactical scenario, communication is through the appropriate agencies (i.e., DASC or the TAOC).

One final and very important fact for all of us to remember about UAVs: when flying downrange, the UAV flight crew cannot comply with the tenet "see and avoid." While payload packages are capable of seeing another aircraft at reasonable ranges, day or night, the field of view is relatively narrow and is generally being used to scan the earth's surface for intelligence and targets. During landing pattern operations, they can follow see and avoid. At this point of operations (takeoff and landing), the Pioneer is flown by an external pilot, who maintains visual contact with the air vehicle.

Pioneer units can be found at the following locations within CONUS, and aircrews can expect to encounter them within those local flying areas:

Operational Units:

•Marine Corps	2D UAVCo	Camp Lejeune, NC
	1st UAVCo	MCAGCC 29 Palms, CA
	3D UAVCo	MCAGCC 29 Palms, CA
•Navy	VC-6 Det Pax	NAS Patuxent River, MD
•Army	C Co 304th MI Bn	Ft. Huachuca, AZ

Support Units:

•Pioneer Fleet Assitance Support Team NAWD Point Mugu, CA
•Defense Unmanned Aerial Vehicle Training Center Ft. Huachuca, AZ ◀

Maj. Craig is the CO of the 2D Unmanned Aerial Vehicle Company.

The use of UAVs is increasing in tactical operations. All aircrews should become familiar with this new form of reconnaissance aircraft, which could appear in their field of operations at any time. UAVs are now a part of naval aviation's safety program and with some minor variations are subject to CNOINST 3750.6Q.

The Naval Safety Center now has an analyst whose area will include UAVs, which is an indication of how important we consider the question of safe operations around them. Just because you've never seen a UAV or know that they are not usually around your home field, doesn't mean that you couldn't find a UAV sharing your airspace during deployment or on a det.—Ed.

Dying

Ens. Stephen P. Davis

Ain't Much of a Living

By Lt. Bob Maddock

It started out as a great day; unfortunately, it didn't end that way. I was scheduled that morning for a 4 v 4 ACM hop with Tomcats and Hornets. What a way to spend the day before pulling into Singapore for R & R. Everything went according to plan until we launched. The 4 v 4 was impossible because of the weather, so my wingman and I opted for plan 2, to work 1 v 1 against each other, which we had briefed.

After spending the next 10 minutes looking for a clear area, my wingman called and said he'd found an area approximately 50 miles northwest of the ship. Both crews agreed that this would be an intercept to an engagement, and at eight miles we could see each other.

The initial pass was right to right at 22,000 feet with about 400 knots on each aircraft. I pulled into a hard, slightly nose low, left turn while my wingman went into a nose-high right turn for a one circle fight. (Yes, I liked that!)

As both aircraft came nose on, we took shots at approximately 9,000 feet. We both thought we were right at 9,000 feet when the shots were called, but we were actually inside that range.

Inside a mile, things still looked pretty good. I perceived a left-to-left pass with several hundred feet of vertical separation between aircraft. At one-half mile, everything turned sour. It now looked like two Tomcats playing chicken with each other. With 800 knots closure, at nearly the same altitude, and a great view of each other's intakes, this was going to be close. I decided my only means of escape was to pass underneath my wingie.

Full-forward stick and instinctively lowering my head to the instrument panel was about all I had time for. Crunch! Good news: my wingman passed over the top of our canopy. Bad news: it was only by a foot or two. Our vertical stabs hit his right wing. My first thought was, "This can't be happening to me!" Then I thought, "I'm going to kill that bum when I get on deck!"

The aircraft began to yaw violently to the left and an orange fireball began to surround the cockpit.

"OK," I said to myself, "no problem. Analyze... Well, I can't focus on the instrument panel, my head is pinned against the canopy, and all that I can see are flames in my peripheral vision. Neutralize... can't reach the stick, which solves that problem. Now, all I've got to do is shut down the engines to put the fire out, neutralize the controls to get out of whatever I'm in, perform a relight and then RTB for that OK 3-wire."

The reality was I'd have been lucky to add two and two. It was time to get out of this jet. I tried to get hold of the ejection handle. The upper handle was completely out of reach. My only hope was the lower handle. After struggling for 10 seconds, I managed to wrap one finger around the handle. An instant later we were free-falling in our seats. Luckily, my RIO was able to reach into the fireball between his legs and initiate the ejection. Thanks, mate.

The ride down in our chutes was uneventful other than the fact that I was dazed and confused. My RIO was picked up several minutes later by an SH-60 from our air wing. I was picked up by a Vietnamese cargo ship almost immediately and then hoisted off by the same helo. I take back anything bad I ever said about helo drivers.

With my situation now under control, my wingman's adventure had just begun. After the midair, his aircraft went into a nose-low spiral. With airspeed increasing through 400 knots, the pilot did a superb job and recovered the aircraft. Looking over their right shoulders, the crew noticed that 10 feet of the aircraft's right wing was missing. After discussing the problem with the ship, they diverted more than 200 miles to Singapore. Their landing speed was approximately 200 knots!

Fortunately, no one was seriously injured in this mishap, although there were some bruised egos. Both aircrews were back flying in three weeks.

ACM is a dangerous business with absolutely no room for error. Many of the training rules we use today were learned from past mishaps. Head-on passes are probably one of the most critical phases of an engagement, and the 500-foot rule of separation is occasionally broken. No one wants to give up angles at the pass, but in the big picture it's better to give up a few angles than your aircraft and life. With 700-800 knots closure, each pilot has approximately five seconds at one mile to decide the direction of pass. If in doubt, call the pass, take action immediately, and live.

These aircrew violated the ACM training rules in OPNAV 3710.7. Within the last five years, naval aviation has lost three Tomcats and two Hornets because of training-rule violations.—Ed. ◄

How to Boil a Frog

By LCdr. Dave Flagg

There is an old country saying about the correct way to boil a frog. If you throw a live frog into a pot of boiling water, it's smart enough to jump right out. However, if you put the frog in a pot of cool water and slowly turn up the heat, it won't notice things getting hotter until it's eventually boiled.

My hard-charging partner and I were ferrying a bird down as the advance party for a weapons-tactics det. As a pair of brand new FRS instructors, we felt confident that we could handle most problems. Heck, with more than 1,000 hours in type and two cruises apiece, we knew we could handle anything. Besides, we had done this several times before.

Take off, get to altitude, set up for max-range cruise, and the next thing we'd know, we'd be sipping a cool one at the Mt. Signal Cafe. That max-range cruise part was necessary because we always took extra racks instead of tanks, in anticipation of lots of bomb dropping. That meant you had to watch the wind a little bit.

Things started going a little askew from the beginning. Instead of going as a single, we were to be in section with a pair of senior Cat II "students." These guys were stellar! Both of them had been FRS instructors and had about a bazillion hours each. My stick and I were determined to show what suave professionals we had become. We conducted a through brief, then out of respect for rank, age and ability, we gave them the lead for the hop.

The aircraft were also configured a little differently. Lead's jet had the standard loadout of bomb racks and a centerline drop tank. Our mighty turbo-swine had the bomb racks along with missile rails attached to the racks. This unusual setup allegedly was legal, but was not included in the drag-count table. We figured that it couldn't be that much worse than empty racks and, besides, the wind was in our favor. (Let's get in the water.)

Takeoff and climbout went fine. As we settled into our max-range profile we noticed that, as expected, our fuel flow was higher than normal. Still not a problem—destination weather was CAVU, and some quick pencil whipping showed we should still land with well over 2,000 pounds of JP-5. Our excess got trimmed a little further down the road when the predicted tail wind shifted into almost pure crosswind. Still no sweat; we would just not have much to play around with.

By this point, the fuel checks within our section showed that lead was not having the same problems we were. The further along we got, the greater the fuel discrepancy became. This seemed so obvious that it was

not worth mentioning to lead. Although we were already at a max-range cruise profile, we were not at optimum altitude. Instead, we were at an altitude that had been selected for "comfort." The practical translation of "comfortable" was keeping cabin altitude below 10,000 feet so masks could be left dangling in true salty fashion.

My pilot and I discussed pimping lead to climb, but we rejected the idea. No one likes a whiner, and we were way too cool to start whining now. Not to mention, we would still make it there with just over 2K. (The water's warm but not uncomfortable.)

As we passed our planned fuel divert at Lemoore, we checked the situation again. Our previous figures still looked good, so on we pressed. Shortly after that, lead started to smell the barn (or maybe the tacos) and pushed the power up. No problem for them, but a major hassle for us.

After gnawing on the decision for a while, we broke our "no-whining" policy just enough to ask lead to pull it back to max range AOA. Lead complied but did not comment about what was, to us, an obvious problem. As it was, our short sprint had cost us gas. A quick refigure showed us on deck with about 1.9K. Decision time.

Turning around for fuel would really look dumb, not to mention the hassle and time involved. On the boat, they worked VFR bingos that had you overhead with only 1.5, so why not now? Lead had to know what was going on and didn't seem worried. (Is it hot in here or is it just me?)

By this time, my kneeboard card was covered front and back with fuel figures. All of that planning had gone out the window when lead zorched out of altitude instead of making an idle descent. Now our fuel situation really was uncomfortable, but we still didn't say anything. (Did somebody turn up the heat again?)

We had rechecked the destination weather. It was still good, and we were determined to hack the situation.

The duty runway was 180 out from our direction of arrival (that figured), and a wide swing around to the initial cost us even more of our scarce fuel. Everything looked good, though, as lead called the numbers with 1.3 showing on our gauge. Man, would I be glad to be on deck! That NATOPS note about flaming out with 700 pounds of gas had been on my mind for quite a while.

Out of the break, the nosegear seemed to take forever to indicate down and locked. As the seconds dragged on, it became obvious that it wasn't going to come down. We were well and truly boiled! It's always amazing how fast your mind works when it has to.

Knowing that we had only one good shot at a go-round before a potential flameout, we called lead to wave off for a gear check. Fingers flew through the PCL as we worked the hung-gear procedures. Just as we were on the verge of blowing the gear and landing with whatever indications we got, a last good pull shook the gear down. Lead confirmed three good gear, and we landed safely. Our fuel was at such a ridiculously low level that we were relieved when we made it to the line without flaming out.

It was a very somber pair that adjourned to a dark corner of the ready room to discuss our near-disaster. The thought of screwing up so badly that we almost flamed out in the pattern was inconceivable. Luckily, the angel that protects idiots and JOs was on our side. The lead crew had somehow never figured out how bad off we were and still didn't understand how near a thing it had been. This saved us from a well-deserved official reprimand, but the one we gave ourselves taught me lessons that are truly rules to live by.

Fly your own aircraft. It doesn't matter who you're flying with or whose wing you're on. Owning a set of wings means being able to make the hard calls the right way. Don't let your trust in someone else's experience lead you down the road to disaster. Don't assume your lead knows what is going on in your cockpit. If you have a problem, say so.

Rules are rules, from wearing your mask to load limits, to fuel minimums and everything in between. If a rule seems overly restrictive, go through channels to change it. But as long as it is a rule, follow it!

It can happen to you. Too often, you get lulled into a sense of invulnerability based on previous successes. "He was my best pilot" is one of the more common mishap report comments, right up there with "aircrew error." This doesn't mean you can't fly aggressively. It does mean that when the hairs on the back of your neck start to stand up, telling you that something is wrong, take a good look around. Plenty of guys smarter than you have done dumb things. Sometimes, they didn't live to tell about it.

Know when to say when. Everybody still hates a whiner, but there is a big difference between whining and realizing when you are getting in too deep. If overly worried about being labeled a "non-hacker," refer to rule 1 above. Everyone can recognize the immediate-action emergency. It's the slow turning up of the heat. Know your limits, and get out of hot water before you get boiled like that frog. ◀

LCdr. Flagg is a BN with VA-95.

Skippers Never Die

By Capt. (Sel) Richard J. Cassara

Lt. Paul A. Ambrogi

A few years ago I thought the only aviators who were killed in our business were young bucks trying to exceed their limitations or mid-grade flyers whose overconfidence, borne of a couple thousand hours, finally got them. These guys were in the peak danger zones and are among those on whom us COs spend a lot of training and worrying. Although a wise admiral once said that the greatest gift a leader can give his men is to worry about them, who worries about the skipper?

Once we push past the magic 3,000-hour mark, we seem to be bulletproof. Sure, we make mistakes, but somehow our experiences bring us through crises that may not have happened if we had listened to our own advice.

Skippers are routinely assigned the strongest planes. (The MO is there because he's smart, you know.) If the plane is multi-crewed, the CO normally selects a front-runner to fly with, which boosts his above-average survival statistics.

But who tells the skipper that he screwed up? I know four COs who died in mishaps. Maybe these skippers should have watched themselves a little more closely because they *knew* no one was really worrying about them. Or, maybe they should have prepared a little more, even though they had done it hundreds of times. Or, they should have fostered an environment that allowed a junior to tactfully point out their errors or shortcomings. Then, maybe they'd still be around today.

You need to worry about the skipper! ◀

Capt. (Sel) Cassara is a BN. He was the CO of VA-145, and is now assigned to the Joint Staff in Washington.

Pullin' My Chain

Maj. John P. Dehart, USMCR

If you spend enough time in the world of naval aviation, you'll develop a sixth sense for knowing which scheduled flights you shouldn't fly. Even though weather is legal, your gut instinct will tell you to pass up the chance for some flight time. One memorable night aboard an LHA en route to the Arabian Gulf helped to reinforce that thought.

We were bound for war, at the later stages of Desert Shield, and had one window of opportunity to get everyone current for night bouncing. The weather was "legal;" it was also terrible, with a 500-overcast, light rain and dark… way dark.

I went through the brief, confident that the mission would be flown. I waited for the hot seat and told myself that it could be flown. Upon strapping in, I realized that it shouldn't be flown. With lots of metal pieces and gears turning, the aircraft was ready to fly, but I wasn't. Something told me that this night didn't feel right. I searched for an electrical-system discrepancy (in order to save face), found one and cancelled the flight.

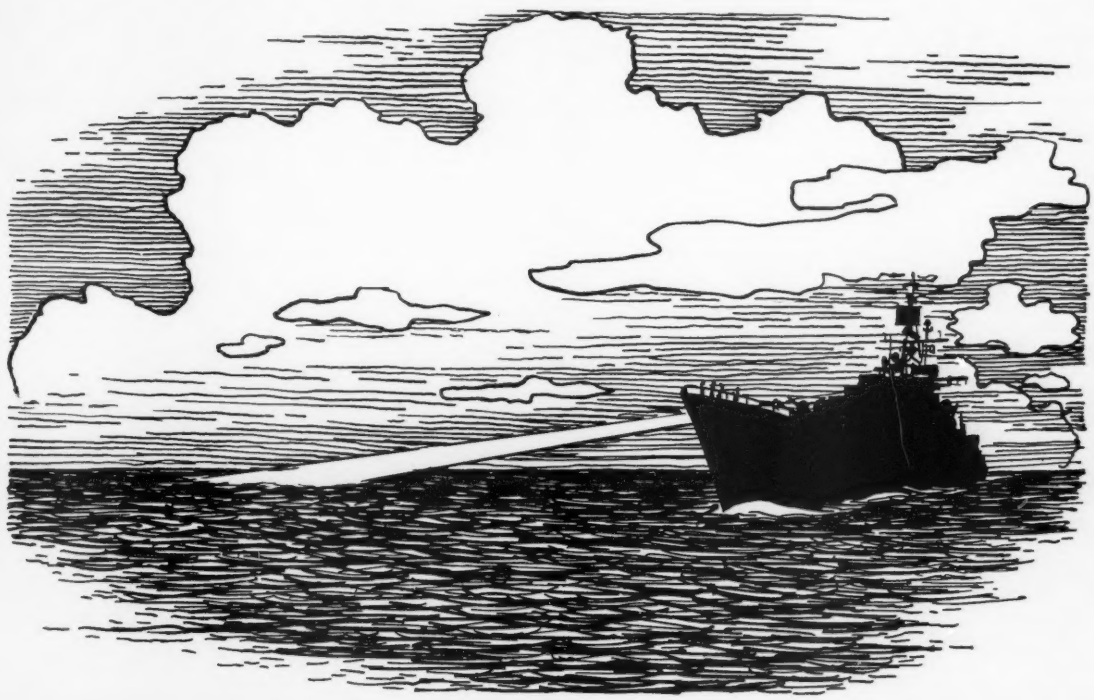
I went back to the ready room expecting to catch some flak from my buddies for passing up a flying opportunity. However, when I got there, I wasn't part of anyone's conversation. There was a hustle and bustle about the room that told me something important was going on. In fact, the flight schedule was being cancelled, and all aircraft were being recalled because the SAR helo had hit the water.

I walked outside, leaned on a catwalk rail, and stared into the inky blackness. I could cancel myself without raising any eyebrows, but that option wasn't available to the SAR crew. If they had scrubbed themselves, they would have wreaked havoc on our squadron's training schedule. They probably felt some pressure to "hack it" for as long as they could. While it was ultimately their decision, I felt some responsibility for their loss.

If I had gotten on the radio and said, "Boss, I'm not launching because the weather's too bad," I might have broken the ice, so that everyone else could chime in with a similar assessment.

I'll never know if I could have broken the chain of events that led to the loss of life and aircraft. I'm sure I broke my own chain, but I had a chance to break theirs, too—if I only had spoken up. ◀

Maj. Dehart flies Cobras with HMA-775.



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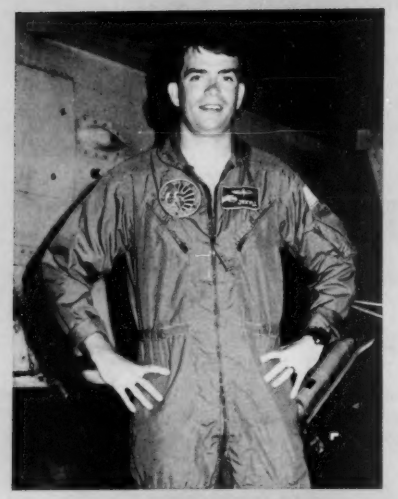

Lt. Lowen B. Loftin
VFA-192

After launching from USS *Independence* (CV 62), Lt. Loftin headed for Australia's Delamere bombing range. With less than 150 hours in the Hornet, he was part of a section Walleye attack with a VA-115 A-6E, during an air-wing strike exercise.

Just before the release point, Lt. Loftin saw an intermittent caution light for right boost low. He stopped the attack and turned back for the carrier, 160 miles away. A Hornet from the sister squadron joined on him to help.

As they climbed, Lt. Loftin's right generator dropped off line and simultaneous hydraulic 2A/2B cautions appeared. Lt. Loftin decided to turn toward the RAAF emergency divert field 60 miles in the opposite direction. A right AMAD pressure caution now lit up, and the pilot secured the right engine.

Fifteen miles from the divert field, Lt. Loftin slowed the aircraft and tried an emergency extension of his landing gear, preparing for a half-flap, single-engine arrested landing. While the nosegear indicated down-and-locked, the two mainmounts showed unsafe. His wingman checked Lt. Loftin's Hornet and told him that the main gear was not fully extended.

Orbiting the field, Lt. Loftin applied negative and positive G to try to lock the mainmounts. With no change in the indications, he tried an aggressive wing rock, which did the trick.

After landing, inspectors found that the power transmission shaft (PTS), which connects the airframe-mounted accessory-drive (MAD) gear box to the right engine, had sheared. If the PTS fails, it causes significant hazards from flailing, fragmentation and fire. An EI is underway to find the cause of the failure. ◄

Capt. James S. O'Meara,
USMC
VT-28

While flying to NAS Whiting Field on a solo ACI ferry flight, Capt. O'Meara had a problem with his T-34C's nosegear as he prepared to stop for fuel at Acadiana Regional.

He tried to lower his landing gear and heard a popping sound, then saw an unsafe-gear indication in the cockpit. He told the Tower and asked for a 2,000-foot overhead pattern.

Capt. O'Meara went through all the NATOPS procedures without success. He made a fly-by, and Tower confirmed that the nosegear was only partly extended.

He then asked Tower to call his squadron. The squadron contact recommended that Capt. O'Meara should divert to NAS New Orleans since military crash and medical personnel would be available.

Arriving at New Orleans, Capt. O'Meara again went through the NATOPS procedures without success. He then made several practice approaches after deciding that he would have to land with the nosegear up.

Capt. O'Meara opened his canopy on downwind and secured the engine on short final. Once the main gear had touched down, he held the nose off the runway to reduce speed. Just before he lost elevator authority, he lowered the nose onto the runway. The T-34 stopped on centerline, approximately 100 feet after the nose touched down.

Damage was less than $10,000, and the aircraft was back in service within a week. The investigation showed that the linkage between the landing-gear motor and the nosegear had failed. ◄

Left to right: AWAN Christopher R. Worley, Lt. Robert C. Jackson, Lt. Curtis H. Goetsch

BZs require an endorsement from the nominating squadron's CO *and* the appropriate CAG, wing commander, or MAG commander. In the case of helo dets, the CO of the ship will suffice. A 5-by-7-inch photo of the crew by a squadron aircraft should also accompany the BZ nomination. Please include a squadron telephone number so that we can call with questions.

Lt. Curtis H. Goetsch
Lt. Robert C. Jackson
AWAN Christopher R. Worley
HSL-37

The crew of Easyrider 60 was conducting wet and dry HIFR training in the North Arabian Gulf with USS *Leftwich* (DD 984). While hovering with the HIFR rig attached off the port side of the ship, the SH-2F lost hydraulic pressure with corresponding loss of hoist power, automatic stabilization equipment (ASE), and flight-control boost assist.

Lt. Jackson (PAC) quickly diagnosed the emergency as a total loss of hydraulic boost and told the crew. Lt. Goetsch (HAC) immediately called for an emergency breakaway. He stopped the aircraft's right yaw, regained control over the center of the flight deck, and maneuvered the helicopter toward a waveoff.

AWAN Worley (SENSO) quickly went through procedures for the emergency breakaway and manually disconnected the HIFR rig. Meanwhile, the HAC disengaged the hydraulic boost switch and stood ready to electrically cut the hoist cable in case the manual breakaway failed.

Once satisfied that the breakaway was successful, the crew continued the waveoff to the starboard side and set up for a boost-off approach. The flight-deck crew cleared the HIFR rig and all unnecessary people from the flight deck.

After completing the landing checklist, reviewing the PCL checklist, and pinning the landing gear in the locked position, the crew made a boost-off landing.

Following shutdown, the maintenance crew found a ruptured hydraulic line under the combining gearbox. The emergency, from detection to landing, took less than two minutes. ◄

Lt. Andrew P. Monson
VFA-125

After launching solo in a two-seat Hornet for an FCF, Lt. Monson entered the R-2508 supersonic corridor at approximately 50,000 feet MSL, 10 nm west of Edwards AFB. He started his supersonic run by pushing the aircraft's nose down to a 30-degree dive, using 0.3 G's. While holding the nose down and accelerating, Lt. Monson heard a thump in the aft cockpit. Looking in his rearview mirror, he discovered that a large avionics box (later identified as the 15-pound, 7-by-6-by-9-inch light control box) had hit the upper portion of the canopy and was floating freely in the rear cockpit.

Concerned that any abrupt control movements might result in the box becoming lodged between the aft stick and console, or between the forward cockpit's ejection seat and the canopy, Lt. Monson slowly increased the G.

At 35,000 feet, 1.4 Mach, and still in a 30-degree dive, he reduced airspeed and slowly brought the Hornet's nose up to the horizon.

By carefully varying the positive G and decelerating, he made the box move forward through the narrow space between the forward cockpit's ejection-seat headbox and the canopy. Once the box was in the forward cockpit, it hit the lower portion of the right DDI. Lt. Monson grabbed the box and held it between his right arm and the forward cockpit's console for the rest of the flight home. ◄

A Few Pounds for the Wife and Kids

By Lt. Brian W. Frazier

One of my former skippers told me, "When you're out over the water on a mission that will take you far from mother, always plan your fuel requirements early, keep on top of them religiously throughout the flight, and throw in a few hundred pounds for the wife and kids."

I've tried to live by those words, and they've seen me through some long missions, but one day in the Adriatic, I think they saved my life.

The ship we were shooting against had left Venice about 0900, and the computer said it was still way out of our range at takeoff time. We launched to go as far a we could, get a radar picture and maybe some ESM data. Then we would come back for a hot pump and go try again. That's what we did, except we went a little farther than SOP said we should.

Our SOP says you should only go as far as you have comms with mother. The ranges weren't too good, but it would only be for about 30 minutes, and it was a beautiful VMC day. We proceeded on the first of our two flights and came home for the hot pump.

As we departed for the second leg of our mission, it was getting dark, and the carrier was beginning flight ops nearby. We all decided that we wouldn't go as far this time, since it was past sunset, and we weren't all that comfortable the last time we were out of comms (which, by the way, turned out to be for considerably more than 30 minutes).

Well, before we knew it, we were at about the same spot we had ended up at halfway through our first bag. We had a good deal more fuel because we hadn't stopped to look at the dead cow we discovered on our first trip.

Realizing we had just done what we said we wouldn't do, we started back. When we reached the point where we had lost then regained comms before, no one was on the other end. So we switched to Marshal, who cleared us to 10 miles and advised us of the case 3 recovery in progress. We felt better now but still had no comms with our ship, no one squawking the correct mode II, and a whole bunch of contacts in the 40-50 mile range ahead.

At about 35 miles out, it was all too clear that gas would be tight if we were not going to break another SOP rule and roll final with less than 600 pounds. We were not willing to chance it, even if we went straight to any of the contacts ahead. But it was looking like it might take quite a bit of VIDing just to be sure which one to go to.

We were about to say, "Suck it up!" and call the Boss with emergency fuel and endure all the hell that would have brought upon us. Then mother called and brought up her TACAN. We turned straight for her. A quick gas check said we would make it above SOP—just above.

The next call from our controller brought the fear of God back once more, as he called our pigeons, which were 20 miles further and 20 degrees off what the TACAN said. We asked him to double check. He paused, then gave us the same call again. We couldn't believe it and kept heading for the needle. A minute later, he gave us a steer that corresponded to what we were praying for and said someone had turned off his IFF when they were in EMCON A. We looked at each other but had no time for discussion as we rolled final.

After landing, and a "good" debrief from the OINC, we discovered that our ship had gone to EMCON A for the exercise. We didn't think she would do that with a helo airborne, but we would have known and avoided it had we stayed within SOP and kept comms. We also would have been advised of the carrier's position and flight-operation cycle, which, to remain clear, caused us to go about 20 extra miles out of our way on our inbound leg.

When you err, do it on the safe side. When you start thinking you can break a rule here and there to accomplish a training mission, it's time for a reality check. Luckily, we had a few pounds in our back pocket for the wife and kids. ◀

Lt. Frazier flies with HSL-42's Det 5.

"A few pounds for the wife and kids" may be a good personal safety factor, but it does not replace the discipline and meticulous planning that's required while operating at sea. In the last 10 years, squadron SOP violations have been cited 85 times as causal factors in Navy/Marine Corps mishaps. Good thing the HAC wasn't a bachelor.—Ed.

You Make the Call...

By Lt. Steven Dunipace

• En route to the warning area, you notice your wingman's tail engulfed in flames. After removing your heart from your throat, what do you say?

• After departing his jet in a "high pop," your wingman enters a spin and plummets rapidly through 10,000 feet. Again, what do you say?

• At 500 feet and 500 knots on a TARPS mission of the flooded Mississippi River, your wingman clips a rubbernecker in a Cessna 150 and rolls to the right. As he approaches 90 degrees AOB head-to-head with a grain elevator, what's your call?

• At last you get that covey launch the handler promised you four months ago. As you wait patiently on cat 1, your wingman trundles off a cold cat 2 and settles rapidly toward the ocean. What is your call?

Like many situations in naval aviation, these questions have no clear-cut answers. As with tactics, every situation we face differs. Each one requires a real-time analysis and an ultimate decision. In every aspect of an aviator's training, good headwork is essential and can only come from extensive study, understanding, and practice.

When faced with situations like those described above, you must decide to remain silent, alert your wingman, direct his aircraft, or even call for him to eject. Your decision must be based on a thorough understanding of NATOPS, aircraft capabilities, and the situation. The time to ponder the "what ifs" of an emergency is not when faced with them, but in the ready room, during training, and in the brief.

We have focused a lot of attention in recent years on crew coordination in multi-seat aircraft. Extensive studies have been completed and training conducted to make multi-seat aircrew more effective during the mission and during emergencies. The concepts of crew coordination, however, need to be expanded beyond the ICS to the UHF. They should include all the cockpits in your section or division, not just your own. Sitting down and discussing the "what ifs" with your wingman is as important as discussing them with your RIO, BN or ECMO.

If your wingman flies into the ground sorting out a fire light or spins into the ocean waiting for recovery, then there is an obvious breakdown in crew coordination in his aircraft. Equally significant is the lack of section coordination that allowed you to have a front-row seat to the incident without doing everything possible to prevent it. The decision to remain silent in such cases is a bad one. We need to use descriptive and directive communications, not only in the tactical environment but during emergencies.

"You're on fire!" may be descriptive enough for your burning wingman, whereas, a "Burner, burner!" call may direct your cold-cat wingman safely away from the water.

"You're passing 10,000 feet" may be descriptive enough to alert your spinning wingman, whereas a "Level your wings and pull!" call may direct him away from that grain elevator.

What are the limits of directive comm? Should your directive-comm plan include the word "Eject"? Does your obligation to your wingman's well-being include directing him to jettison his aircraft?

A "Break right!" call would be delivered without hesitation to prevent an imminent surface-to-air missile hit, but would an "Eject!" call be enough to avoid hitting the ground? Your spinning wingman may be so intent on recovering his aircraft that he fails to recognize his rapidly disappearing altitude. Is the call for him to eject timely and appropriate? Your low-level wingman may have been blinded by his midair and is unaware of his impending merge with the silo. Again, can the eject call be a life-saver?

Lt. Dunipace flies with VF-103.

OPNAV 3710.7P requires qualification and annual certification of all aviation personnel in aircrew coordination training (ACT).—Ed.

1993 Approach Index

Ejection and Survival

Month Page

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FOD

Ground Operations

Helicopter—(see February theme issue)

Humor

Midair/Near Midair

Miscellaneous

Mishap Investigation

NATOPS and Safety

Preflight

Search and Rescue (SAR)

Training

Weather

Vultures' Row

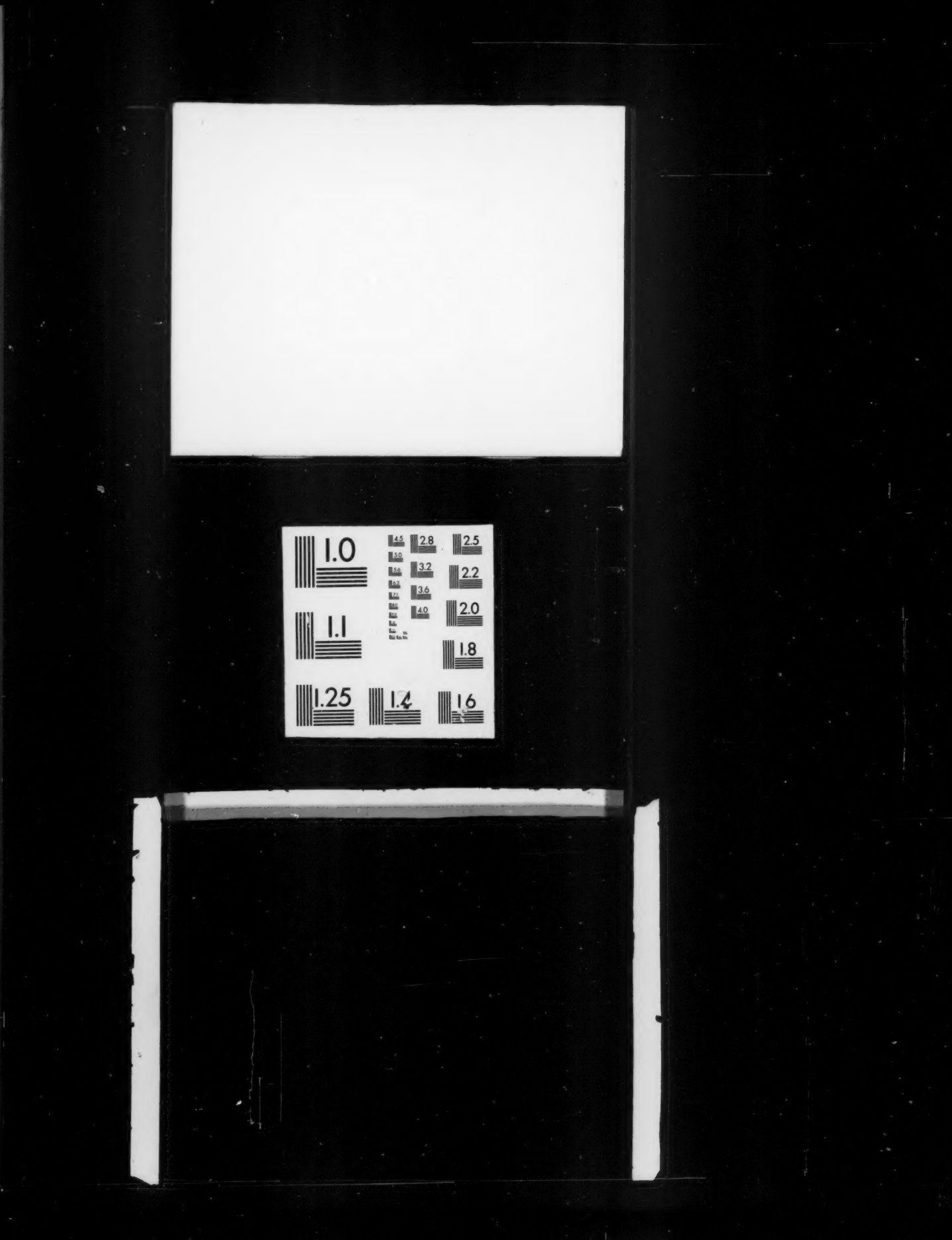
This list includes Flight, Flight Related and Ground Class A Mishaps during FY-94.
Classifications and descriptions are subject to change.

DATE	PLATFORM	COMMAND	DAY; NIGHT	FATAL	FLIGHT REGIME; LOCATION
7 Oct	UH-1N	HMM-163	N	1	Takeoff; at sea
14 Oct	UH-1N	HMM-268	N	0	Towing, aircraft fell overboard (AGM); at sea
15 Oct	AV-8B	VMA-231	D	0	Birdstrike during low-level; Raleigh, NC

and responsibility. Company car with phone and other bonuses.

EDITOR- *Approach* Magazine, the Naval Aviation Safety Review, seeks motivated, fast-track 13XX to assume the role of Editor in March '94. Applicant should possess familiarity with the publication and have a desire to maintain it as the finest aviation safety periodical available today. Journalism and commercial art background a plus. Call 804-444-7416 or DSN 564-7416.

EEL HANDLER–Local zoo needs part-time help with the care and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